

REMARKS

Claims 2 and 7-12 are pending in this application, with claims 7 and 8 withdrawn from consideration. By this Amendment, claim 2 is amended.

No new matter is added to the application by this Amendment. The features added to claim 2 find support in present Example 5 and within the specification, as originally filed, at, for example, page 18, lines 6-12.

Reconsideration of the application is respectfully requested.

I. Rejections Under 35 U.S.C. 103

A. Tsuchiya et al., Newkirk et al. or Coates et al., McCormack et al. and optionally Igaue et al.

Claims 2 and 9-11 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,962,068 to Tsuchiya et al. (hereinafter “Tsuchiya”) in view of either one of U.S. Patent No. 5,143,779 to Newkirk et al. (hereinafter “Newkirk”) or U.S. Patent No. 3,291,677 to Coates et al. (hereinafter “Coates”) and U.S. Patent No. 5,674,742 to McCormack et al. (hereinafter “McCormack”) and optionally JP 2-74254 to Igaue et al. (hereinafter “Igaue”). This rejection is respectfully traversed.

Prior to discussing the merits of the Examiner's position, the undersigned reminds the Examiner that the determination of obviousness under § 103(a) requires consideration of the factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1 [148 USPQ 459] (1966): (1) the scope and content of the prior art; (2) the differences between the claims and the prior art; (3) the level of ordinary skill in the pertinent art; and (4) secondary considerations, if any, of nonobviousness. *McNeil-PPC, Inc. v. L. Perrigo Co.*, 337 F.3d 1362, 1368, 67 USPQ2d 1649, 1653 (Fed. Cir. 2003). There must be some suggestion, teaching, or motivation arising from what the prior art would have taught a

person of ordinary skill in the field of the invention to make the proposed changes to the reference. *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988). But see also *KSR International Co. v. Teleflex Inc.*, 82 USPQ2D 1385 (U.S. 2007).

A methodology for the analysis of obviousness was set out in *In re Kotzab*, 217 F.3d 1365, 1369-70, 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000) A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher."

It must also be shown that one having ordinary skill in the art would reasonably have expected any proposed changes to a prior art reference would have been successful. *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 1207, 18 USPQ2d 1016, 1022 (Fed. Cir. 1991); *In re O'Farrell*, 853 F.2d 894, 903-04, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988); *In re Clinton*, 527 F.2d 1226, 1228, 188 USPQ 365, 367 (CCPA 1976). "Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure." *In re Dow Chem. Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988).

The Patent Office alleges that the combination of the above-mentioned references teaches or suggests the features recited in claims 2 and 9-11. Specifically, the Patent Office alleges that McCormack teaches well taken finishing operations for fibrous

nonwoven substrates such as for a diaper or sanitary napkin including shaping the substrate by passing the substrate between a pair of rollers, wherein at least one of the pair of rollers has a surface with an uneven pattern, to thermo-compress the substrate and form an aesthetic pattern or improve properties such as strength, softness, etc. Additionally, the Patent Office alleges that Igaue teaches that it is known that thermo-compressing the composite increases the composite's water absorbing properties. Moreover, the Patent Office alleges that it would have been obvious to include in Tsuchiya as modified by Newkirk or Coates a well taken thermo-compressing finishing operation for forming an aesthetic pattern on the composite or improve properties such as strength, softness, etc of the composite as shown by McCormack such that thermo-compression finishing also increasing the water absorbing properties of the composite as optionally shown by Igaue, Applicants respectfully disagree with each of these allegations made by the Patent Office.

McCormack teaches that a bonding pattern can be used in bonding the fibers of the nonwoven fabric to itself or in bonding the nonwoven fabric to other material layers which may cause great changes in the fabric properties (see col. 1, lines 26-29).

McCormack also teaches that a nonwoven fabric thermally bonded by a thermal bonding pattern having an element aspect ratio between about 2 and about 20 and an unbonded fiber aspect ratio of between about 3 and about 10 exhibits higher abrasion resistance and strength than a similar fabric bonded with different bond patterns (see col. 1, lines 54-60). Further, McCormack teaches that thermal point bonding involves passing a fabric or web of fibers to be bonded between a heated anvil roll (usually flat) and a heated calendar roll

(usually patterned in some way so that the entire fabric is not bonded across its entire surface) (see col. 3, lines 59-64).

Moreover, McCormack discloses several typical point bonding patterns, such as expanded a Hansen-Pennings pattern, a Hansen-Pennings (hereinafter “EHP”) pattern, a rib-knit (hereinafter “RK”) pattern and a wire weave (hereinafter “WW”) pattern (see col. 3, line 66 – col. 4, line 5 and Comparative Example 1) and their inventive S-weave pattern (wherein an unbonded area is not completely surrounded by bond area but is surrounded to a large degree) (see col. 7, line 65 – col. 8, line 8). As cited by the Patent Office, McCormack also discloses a suitable process for forming a pattern-unbonded nonwoven material which includes a fabric pattern having continuous thermally bonded areas defining plurality of discrete unbonded areas (see col. 4, lines 18-51).

Nowhere does McCormack teach or suggest thermo-compressing let alone thermo-compressing a substrate, by passing the substrate between a pair of rollers wherein at least one of the pair of rollers has a surface with an uneven pattern, to form an aesthetic pattern and/or improve properties such as strength, softness etc. as alleged by the Patent Office. Instead, McCormack teaches that fabrics bonded with the S-weave pattern or EHP bonded fabrics show an increase in abrasion resistance and hydrohead with good strength and acceptable softness (see col. 8, lines 3-8). However, McCormack also teaches that fabric bonded with a RK pattern or a WW pattern exhibit inferior strength and abrasion resistance when compared to S-weave pattern bonded fabrics and EHP bonded fabrics (see Tables 1 and 2).

Thus, at best, McCormack teaches that nonwoven thermally bonded fabrics exhibit different fabric properties based on the type of point bonding patterns used.

However, McCormack's thermal bonding of fabrics with point bonding patterns does not teach or suggest thermo-compressing a water-absorbing composite by passing the composite between a pair of rollers, wherein at least one of the pair of rollers has a surface with an uneven pattern which is included within a 10 mm-diameter circle and is two dimensionally repeated with an interval of 1-5 mm as required by the present claims. Moreover, McCormack's manipulation of different fabric properties for thermally bonded fabrics fails to teach or suggest improving properties (i.e., strength, softness, etc.) by thermo-compression as alleged by the Patent Office.

Igaue does not teach or suggest that it is known that thermo-compressing the composite increases its absorbing properties as alleged by the Patent Office. Igaue discloses that compressing a mat like body in the thickness direction thereof to provide water absorbing recoverability increases absorbing capacity of the mat (see the Abstract). Igaue also discloses that this mat like body is compressed in its thickness direction so as to have a compression density of 0.033-0.7 g/cm³ to impart water absorbing recoverability (see the Abstract).

Nowhere does Igaue even mention thermo-compressing the mat. Thus, Igaue fails to teach or suggest that thermo-compressing the mat increases its water absorbing properties as alleged by the Patent Office. Moreover, Igaue's compressing a mat in its thickness direction to increase its absorbing properties does not teach or suggest thermo-compressing a water-absorbing composite by passing the composite between a pair of rollers, wherein at least one of the pair of rollers has a surface with an uneven pattern which is included within a 10 mm-diameter circle and is two dimensionally repeated with an interval of 1-5 mm as required by the present claims.

None of Tsuchiya, Newkirk, Coates, McCormack and optionally Igaue, taken singly or in combination, teaches or suggests a process for manufacturing a water-absorbing composite having the step of thermo-compressing the water-absorbing composite prepared in step (B) by passing the water-absorbing composite between a pair of rollers, wherein at least one of the pair of rollers has a surface with an uneven pattern which is included within a 10 mm-diameter circle and is two dimensionally repeated with an interval of 1-5 mm as required in amended claim 2.

By conducting thermal compression using at least one roller having a surface with an uneven pattern which is included within a 10 mm-diameter circle and is two dimensionally repeated with an interval of 1-5 mm, the water-absorbing composite exhibits an unexpected and superior artificial urine permeation rate (see page 18, lines 3-18 of the present specification.). In present Example 4, a water-absorbing composite thermally-compressed with iron (pressure: 0.05 MPa) at 110° C for 10 seconds to produce a water-absorbing composite. In present Example 5, a water-absorbing composite was thermally-compressed with a pair of rollers having a surface with a stripe pattern (width 0.5 mm, interval: 3 mm, depth: 0.4mm), a roller surface temperature of 80° C, a roller linear load of kg/cm and a gap between the rollers of 10 μm .

Table 3 indicates that the artificial urine permeation rate of the water-absorbing composite of Example 5 is 1.8 seconds which is an unexpected and superior improvement when compared to the water-absorbing composite of Example 4 having an artificial urine permeation rate of 2.3 seconds. Tsuchiya, Newkirk, Coates, McCormack and optionally Igaue, taken singly or in combination, do not teach or suggest this effect of the uneven pattern. Moreover, these cited references, taken singly or in combination, do not teach or

suggest this effect of the uneven pattern which surprisingly and unexpectedly increases the artificial urine permeation rate for a water-absorbing composite which has been thermally compressed in accordance with the present claims.

Because the features of independent claim 2 are not taught or suggested by Tsuchiya, Newkirk, Coates, McCormack and optionally Igaue, taken singly or in combination, these references would not have rendered the features of independent claim 2 obvious to one of ordinary skill in the art.

For at least these reasons, claims 2 and 9-11 are patentable over the applied references. Thus, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

B. Tsuchiya, Newkirk or Coates, McCormack and optionally Igaue in view of Shiba et al.

Claim 12 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Tsuchiya and Newkirk or Coates, McCormack, and optionally Igaue and further in view of U.S. Patent No. 4,652,484 to Shiba et al. (hereinafter “Shiba”). This rejection is respectfully traversed.

Shiba does not remedy the deficiencies of Tsuchiya, Newkirk, Coates, McCormack and Igaue as described above with respect to claim 2, from which claim 12 depends.

None of Tsuchiya, Newkirk, Coates, McCormack, Igaue, and Shiba, taken singly or in combination, teaches or suggests the step of thermo-compressing the water-absorbing composite prepared in step (B) by passing the water-absorbing composite between a pair of rollers, wherein at least one of the pair of rollers has a surface with an

uneven pattern which is included within a 10 mm-diameter circle and is two dimensionally repeated with an interval of 1-5 mm as required in claim 2.

Because the features of independent claim 2 are not taught or suggested by the cited references, taken singly or in combination, these references would not have rendered the features of claim 2 and its dependent claims obvious to one of ordinary skill in the art.

Accordingly, reconsideration and withdrawal of the rejection of claim 12 under 35 U.S.C. §103(a) are respectfully requested.

II. Rejoinder

Applicants submit that upon allowance of claims 2 and 9-12, withdrawn claims 7 and 8 should be rejoined with the application and similarly allowed.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 2 and 7-12 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Early and favorable action is earnestly solicited.

CONDITIONAL PETITION FOR EXTENSION OF TIME

If any extension of time for this response is required, Applicants request that this be considered a petition therefor. Please charge the required petition fee to Deposit Account No. 14-1263.

ADDITIONAL FEE

Please charge any insufficiency of fees, or credit any excess, to Deposit Account
No. 14-1263.

Respectfully submitted,
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